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United States
Department of
Agriculture

Soil
Conservation
Service

Bozeman,
Montana



MONTANA WATER SUPPLY OUTLOOK

June 2, 1986



Foreword

How Forecasts Are Made

Most of the annual streamflow in the Western United States originates as snowfall. This snowfall accumulates high in the mountains during winter and early spring. As the snowpack accumulates, hydrologists estimate the runoff that will occur when it melts. Predictions are based on careful measurements of snow water equivalent at selected index points. Precipitation, temperature, soil moisture and antecedent streamflow data are viewed in conjunction with snowpack data to prepare runoff forecasts. This report presents a comprehensive picture of water supply outlook conditions for areas dependent upon surface runoff. It includes selected streamflow forecasts, summarized snowpack and precipitation data, reservoir storage data and narratives describing current conditions.

Streamflow forecasts are cooperatively generated by Soil Conservation Service and National Weather Service hydrologists. Forecasts become more accurate as more data affecting runoff becomes known. For this reason, forecasts are issued that reflect three future precipitation conditions — Below Normal, Average, and Above Normal. These forecasts are termed reasonable minimum, most probable, and reasonable maximum. Actual streamflow can be expected to fall between the lower and upper forecast values eight out of ten years.

Snowpack data are obtained by using a combination of manual and automated measurement methods. Manual readings of snow depth and water equivalent are taken at locations called snow courses on a monthly or semi-monthly schedule during the winter. In addition, snow water equivalent, precipitation, temperature, and other parameters are monitored on a daily basis and transmitted via radio telemetry to central data collection facilities. Both monthly and daily data are used to project snowmelt runoff.

For More Information

Copies of Monthly Water Supply Outlook Reports and other reports may be obtained from the states listed below. Because of the limited space, snow survey measurements are not published in monthly reports. An annual snow survey data summary is published by the Soil Conservation Service for each of the western states. Historical snow survey data may be obtained at those same offices.

STATE	ADDRESS
Alaska	201 East 9th Ave., Suite 300, Anchorage, AK 99501-3687
Arizona	201 East Indianola, Suite 200, Phoenix, AZ 85012
Colorado (New Mexico)	2490 West 26th Ave., Denver, CO 80211
Idaho	304 North 8th Street, Room 345, Boise, ID 83702
Montana	10 East Babcock, Room 443, Federal Building, Bozeman, MT 59715
Nevada	50 South Virginia Street, Third Floor, Reno, NV 89505
Oregon	1220 Southwest 3rd Ave., 16th Floor, Portland, OR 97204
Utah	4402 Federal Building, 125 South State Street, Salt Lake City, UT 84147
Washington	360 U.S. Court House, Spokane, WA 99201
Wyoming	Federal Building, 100 East "B" Street, Casper, WY 82602

In addition to state reports, a Water Supply Outlook for the Western United States is published by the Soil Conservation Service and National Weather Service monthly, January through May. Reports may be obtained from the Soil Conservation Service, West National Technical Center, 511 Northwest Broadway, Room 547, Portland, OR 97209.

Published by other agencies:

Water Supply Outlook Reports prepared by other agencies include: California — Snow Survey Branch, California Department of Water Resources, P.O. Box 388, Sacramento, CA 95802; British Columbia — The Ministry of Environment, Water Investigations Branch, Parliament Buildings, Victoria, British Columbia, V8V 1X5; Yukon Territory — Department of Indian and Northern Affairs, Northern Operations Branch, 200 Range Road, Whitehorse, Yukon Territory, Y1A 3V1; Alberta, Saskatchewan, and N.W.T. — The Water Survey of Canada, Inland Waters Branch, 110-12 Avenue S.W., Calgary, Alberta, T3C 1A6.

Montana Water Supply Outlook

and

Federal – State – Private Cooperative Snow Surveys

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GENERAL OUTLOOK

SUMMARY:

The first half of May was wet and cool in Montana. High elevations showed increases in the snowpack. Weather patterns reversed for the last half of the month and above average temperatures generated melt rates nearly twice that of normal. Most snow-fed streams showed rapid increases in runoff and many reached their snowmelt peak in late May or early June. The snow covered areas were smaller than normal but with melt occurring at twice the normal rates, most peak flow volumes were higher than predicted and were generally about average or above average levels. Most reservoirs are full and spilling excess inflows. With the rapid melt, irrigation shortages are still anticipated to develop by late June to early July over most of the state in areas not having stored water.

SNOWPACK:

Low elevation snowpacks melted earlier than normal this year. High elevation snowpacks continued to build through the first half of May but have been dropping rapidly since mid-May. Above average temperatures and high freezing elevations generated melt rates about twice the average the last week in May. Only the high elevation sites had snow on June 1. Snowpacks are generally below average in all areas except the Madison River headwaters in Yellowstone National Park.

PRECIPITATION:

Early May mountain precipitation was above average over most of the state but late May was drier. Monthly totals were a little above average in the Kootenai and above average in the St. Mary and Milk drainages. Below average amounts fell in the Missouri, Sun, Teton, Marias and Yellowstone areas east of the Divide and the upper Clark Fork west of the Divide. Near average precipitation was recorded in the Missouri headwaters, lower Clark Fork, Bitterroot and Flathead River headwaters.

RESERVOIRS:

Most irrigation reservoirs are full or nearly full. Larger multipurpose reservoirs have near average storage with some space still available for flood control.

STREAMFLOW:

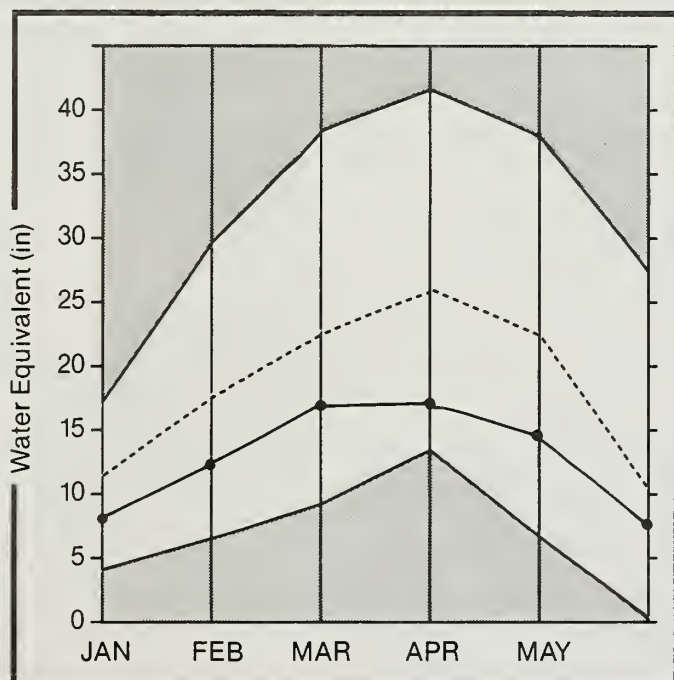
Runoff during May was near to above average in southwest Montana and generally below average elsewhere. In early May, runoff was quite low due to cool temperatures. Some low elevation streams did produce good runoff from rain and wet soils. Snow-fed streams showed large increases in runoff in late May from rapid snowmelt generated by above average temperatures. Withdrawal of irrigation water is greater than usual because of recent temperatures and dry weather.

PEAK FLOWS:

Most streams fed by snowmelt runoff had their snowmelt peak flows in late May. The higher elevation headwaters of the Yellowstone and Missouri Rivers are expected to peak in early June. Heavy rains in June could bring streams up again but snowmelt becomes less of a factor with each warm day that passes. Also, soils are drying due to warm temperatures and are capable of absorbing some rain before runoff is generated.

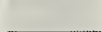
Kootenai Basin

Mountain snowpack* (inches)

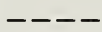


* Kootenai in Montana

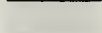
Maximum



Average



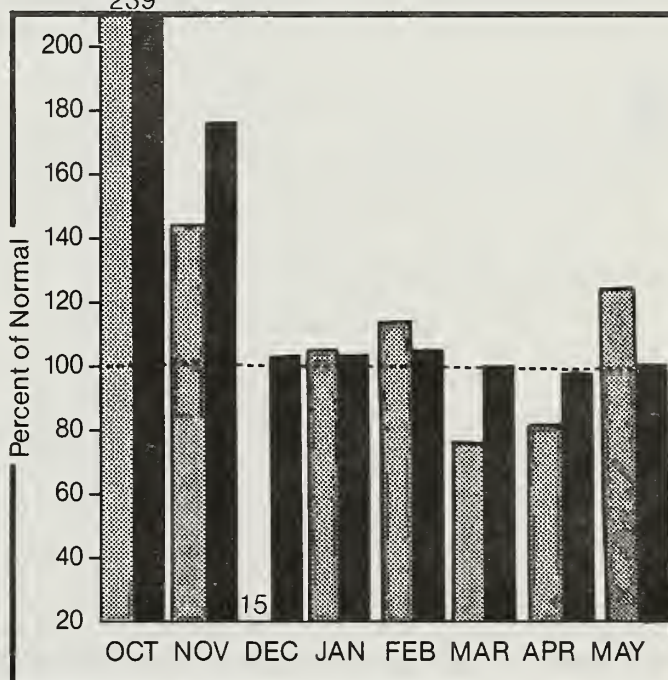
Minimum



Current



Precipitation* (percent of normal)



* Based on selected stations

Monthly precipitation



Year to date precipitation



KOOTENAI RIVER BASIN in Montana

WATER SUPPLY OUTLOOK:

May runoff was a little below average but mountain precipitation was above average. Melt rates were well above average in late May and snowpacks remain below average. Runoff on tributary streams is still expected to be well below average for the rest of the summer. Only well above average rainfall can alleviate serious irrigation water shortages this summer. The Kootenai River is a little better with more favorable moisture conditions in British Columbia.

For more information contact your local Soil Conservation Service office.

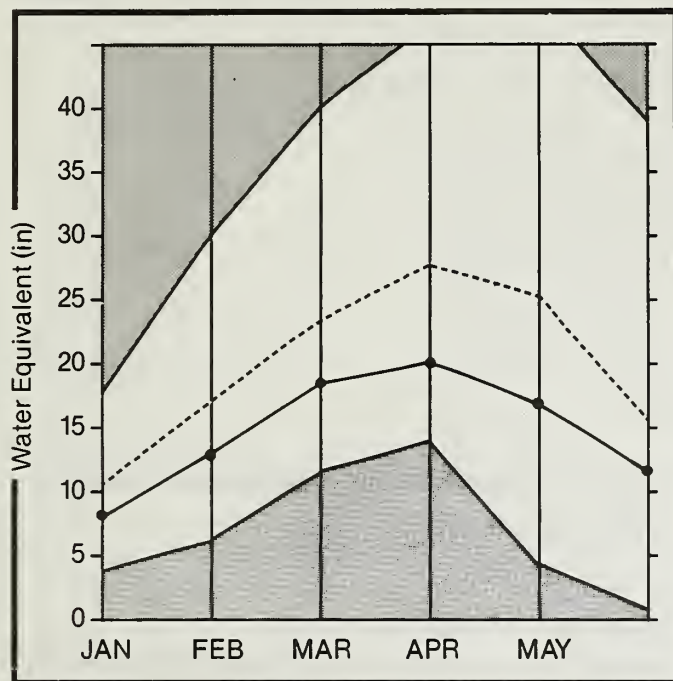
KOOTENAI RIVER BASIN in Montana

RESERVOIR STORAGE (1000AF)					WATERSHED SNOWPACK ANALYSIS			
RESERVOIR	USEABLE CAPACITY	** USEABLE STORAGE **			WATERSHED	NO. COURSES AVE.D	THIS YEAR AS % OF	
		THIS YEAR	LAST YEAR	AVE.			LAST YR.	AVERAGE
LAKE KOOCANUSA	5748.0	4106.0	3605.0	3214.0	EAST KOOTENAI in B.C.	11	238	109
					KOOTENAI in MONTANA	14	196	75
					KOOTENAI ab BONNERS FERRY	25	216	90

*Corrected for upstream diversions or changes in reservoir storage.
Average is for 1961-80 period.

Flathead Basin

Mountain snowpack* (inches)

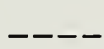


* Flathead

Maximum



Average



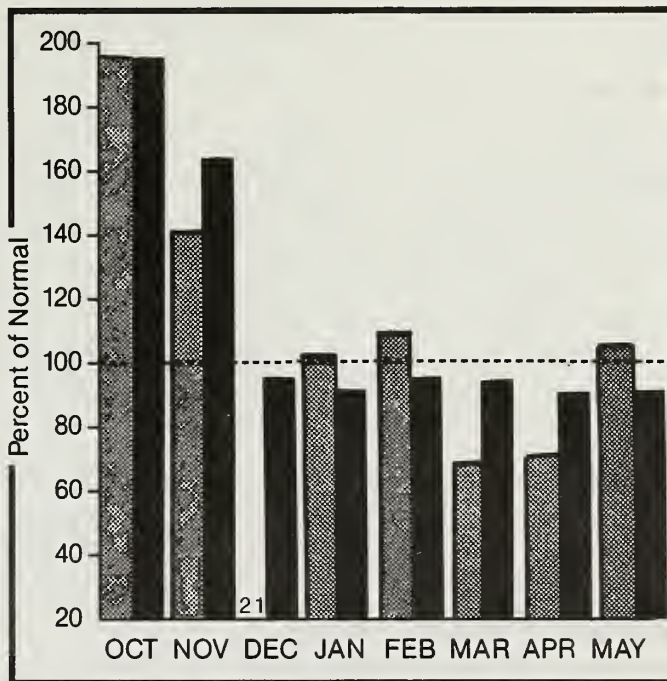
Minimum



Current



Precipitation* (percent of normal)



*Based on selected stations

Monthly precipitation



Year to date precipitation



WATER SUPPLY OUTLOOK:

Mountain precipitation for May was near average. Early May was cool and wet with higher elevation snowpacks showing some increases in water content. Late May was hot and dry generating large snowmelt rates. This caused a substantial increase in streamflows. Runoff for May was in the 75 to 85 percent of average range. Snowpacks are still below average. Streamflows are expected to be well below average for the remainder of the summer.

For more information contact your local Soil Conservation Service office.

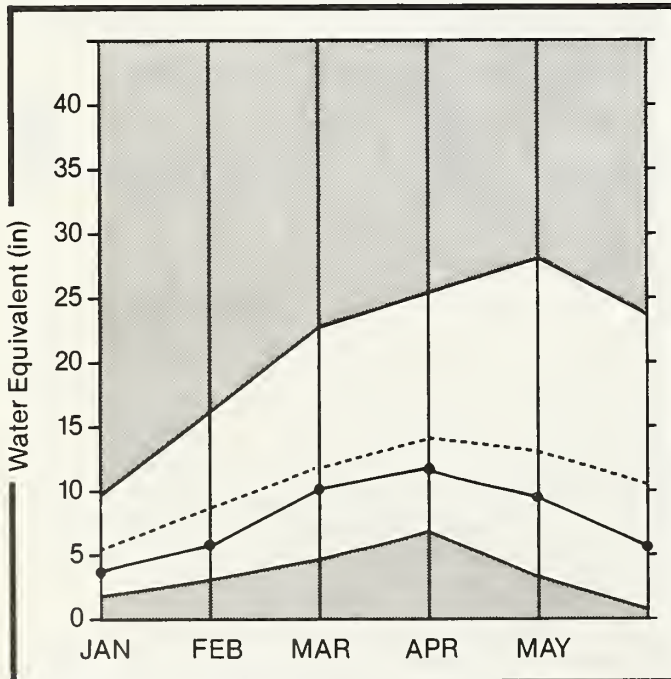
FLATHEAD RIVER BASIN

RESERVOIR STORAGE (1000AF)					WATERSHED SNOWPACK ANALYSIS		
RESERVOIR	USEABLE CAPACITY	** USEABLE STORAGE THIS YEAR	** USEABLE STORAGE LAST YEAR	** AVE.	WATERSHED	NO. COURSES AVE.D	THIS YEAR AS % OF LAST YR. AVERAGE
CAMAS (4)	45.2	37.3	26.1	31.1	NORTH FORK FLATHEAD	10	166 88
MISSION VALLEY (8)	100.0	95.0	49.8	66.5	MIDDLE FORK FLATHEAD	5	119 62
HUNGRY HORSE	3451.0	2230.0	3016.0	2616.0	SOUTH FORK FLATHEAD	5	122 70
FLATHEAD LAKE	1791.0	1568.0	1573.0	1463.0	STILLWATER-WHITEFISH	3	459 81
					SWAN	6	131 66
					LITTLE BITTERROOT	1	0 0
					FLATHEAD	21	148 73

*Corrected for upstream diversions or changes in reservoir storage.
Average is for 1961-80 period.

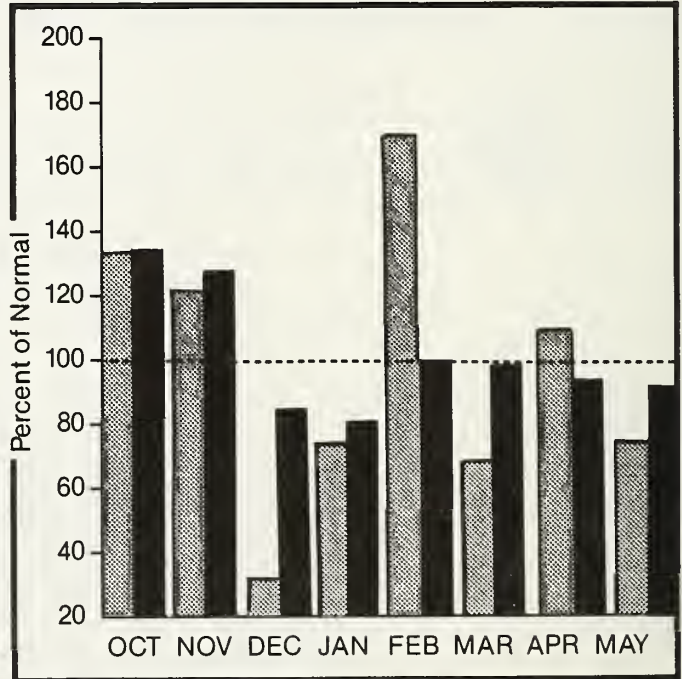
Clark Fork Basin above Missoula

Mountain snowpack* (inches)



* Clark Fork above Missoula

Precipitation* (percent of normal)



*Based on selected stations

Maximum ———
Minimum ———
Average - - - - -
Current ● ——— ●

Monthly precipitation [hatched bar]
Year to date precipitation [solid black bar]

CLARK FORK RIVER BASIN above Missoula

WATER SUPPLY OUTLOOK:

Mountain precipitation for May averaged about 75 percent of average over the basin. Snowpacks remain well below average. Early May was cold and wet followed by hot and dry weather in late May. High melt rates in late May caused large increases in streamflows. May runoff was about 70 percent of average. Streamflows for the rest of the summer are still expected to be well below average with irrigation water shortages developing by late June.

For more information contact your local Soil Conservation Service office.

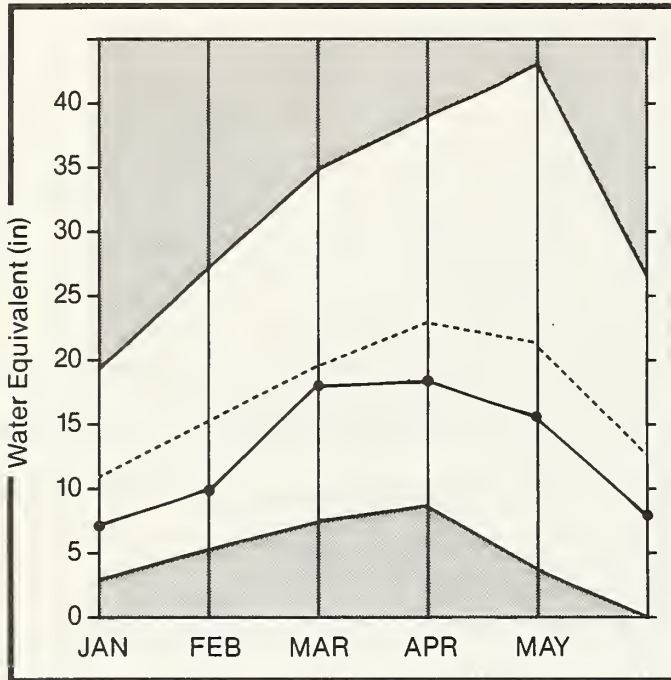
CLARK FORK RIVER BASIN above Missoula

RESERVOIR STORAGE (1000AF)					WATERSHED SNOWPACK ANALYSIS			
RESERVOIR	USEABLE I CAPACITY I	XX USEABLE STORAGE XX THIS YEAR	LAST YEAR	AVE.	WATERSHED	NO. COURSES AVE.D	THIS YEAR AS % OF LAST YR. AVERAGE	
GEORGETOWN LAKE	31.0	29.1	26.5	26.2	CLARK FORK ab BLACKFOOT	14	515	64
LOWER WILLOW CREEK	4.9	5.0	4.1	4.3	BLACKFOOT	6	131	17
NEVADA CREEK	12.6	12.8	10.1	11.5	CLARK FORK above MISSOULA	18	391	51

*Corrected for upstream diversions or changes in reservoir storage.
Average is for 1961-80 period.

Clark Fork Basin below Missoula

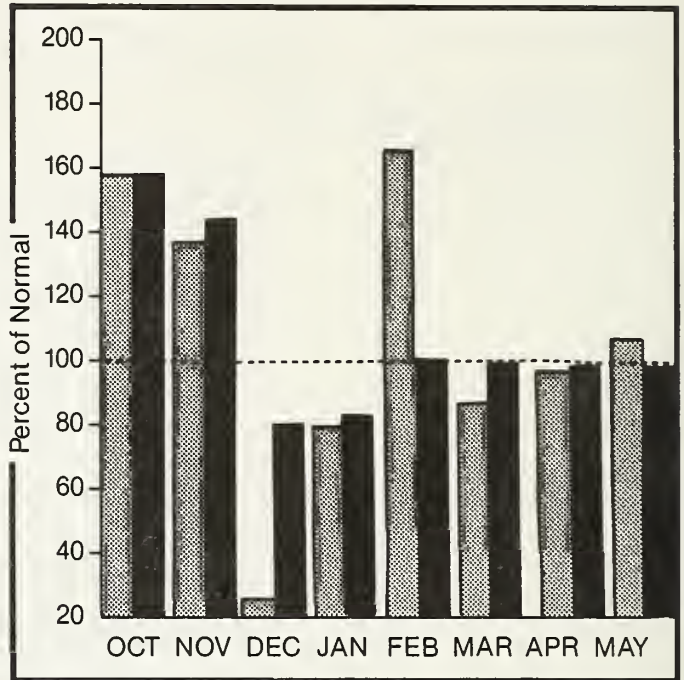
Mountain snowpack* (inches)



* Bitterroot

Maximum ———
Minimum ———
Average - - - -
Current ● — ●

Precipitation* (percent of normal)



*Based on selected stations

Monthly precipitation [hatched bar]
Year to date precipitation [solid black bar]

WATER SUPPLY OUTLOOK:

May precipitation in the mountains was near to a little above average. Snowpacks continue to be below average. High elevation snowpacks increased in early May with cool, wet weather. By late May, hot temperatures caused well above average snowmelt rates and streamflows increased significantly. May runoff was below average and streamflows are still forecast below average. Shortages of irrigation water supplies can be expected by late June to early July.

For more information contact your local Soil Conservation Service office.

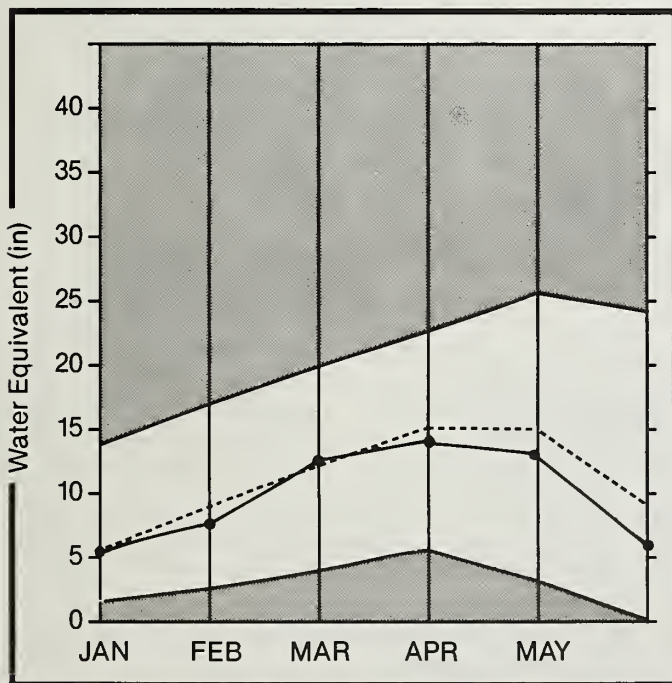
CLARK FORK RIVER BASIN below Missoula

RESERVOIR STORAGE (1000AF)					WATERSHED SNOWPACK ANALYSIS		
RESERVOIR	USEABLE CAPACITY	** USEABLE STORAGE THIS YEAR	LAST YEAR	AVE.	WATERSHED	NO. COURSES AVE.D	THIS YEAR AS % OF LAST YR. AVERAGE
PAINTED ROCKS LAKE		NO REPORT			CLARK FORK above MISSOULA	18	391 51
NDXON RAPIDS	335.0	333.0	326.4	258.3	BITTERROOT	8	290 61
COMO	34.9	35.4	34.2	27.1	LWR CLARK FK b/w MISSOULA	7	82 54
					BITTERROOT & LWR C.F.	15	115 57
					CLARK FORK TOTAL	31	144 53
					FLATHEAD	21	148 73
					PEND O'REILLE	48	147 66

*Corrected for upstream diversions or changes in reservoir storage.
Average is for 1961-80 period.

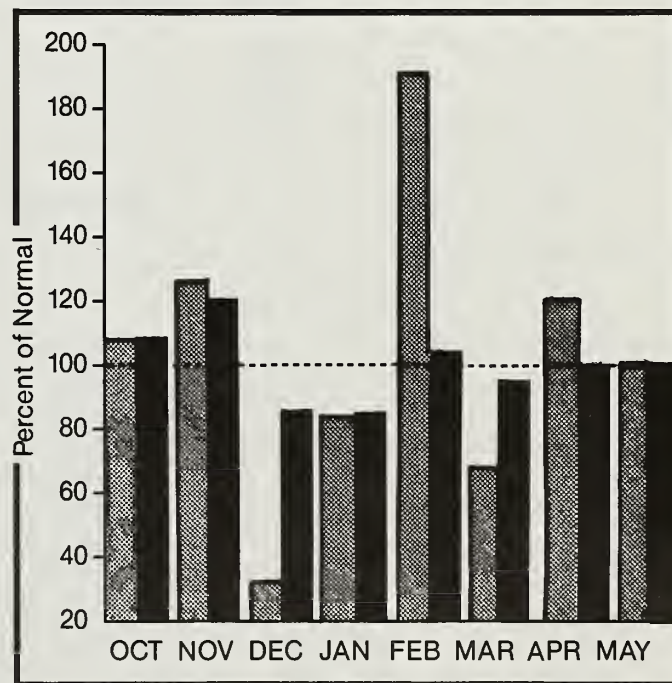
Jefferson Basin

Mountain snowpack* (inches)



* Jefferson

Precipitation* (percent of normal)



*Based on selected stations

Maximum

Average

Minimum

Current

Monthly precipitation

Year to date precipitation

JEFFERSON RIVER BASIN

WATER SUPPLY OUTLOOK:

Snowpacks are below average. Early May was wet and cool with some increases in the snowpack. Late May was warm and large melt rates increased streams to bank-full levels. Mountain precipitation was near average in May. Runoff in May was below average on the Big Hole, well below average on the Beaverhead and a little below average on the Ruby. Streamflows are still expected to be a little below average for the remainder of the summer. Some irrigation shortages may develop if rainfall is below average.

For more information contact your local Soil Conservation Service office.

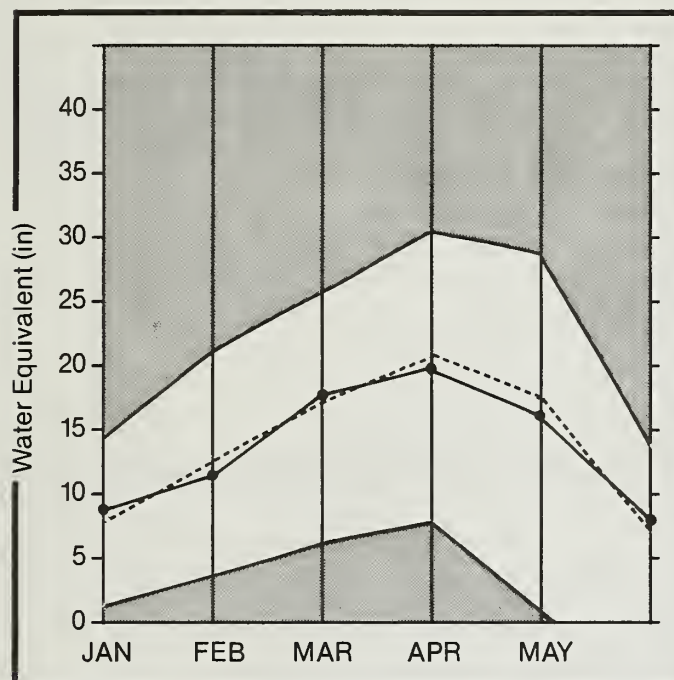
JEFFERSON RIVER BASIN

RESERVOIR STORAGE (1000AF)					WATERSHED SNOWPACK ANALYSIS		
RESERVOIR	USEABLE CAPACITY	** USEABLE STORAGE ** THIS YEAR	LAST YEAR	AVE.	WATERSHED	NO. COURSES AVE.D	THIS YEAR AS % OF LAST YR. AVERAGE
LIMA	84.0	75.2	72.8	64.6	BEAVERHEAD	8	294 61
CLARK CANYON	255.6	166.1	159.0	163.7	RUBY	4	1961 91
RUBY RIVER	38.8	41.3	37.7	37.8	BIGHOLE	8	421 60
					BOULDER	4	2190 65
					JEFFERSON	17	688 68

*Corrected for upstream diversions or changes in reservoir storage.
Average is for 1961-80 period.

Madison Basin

Mountain snowpack* (inches)



* Madison

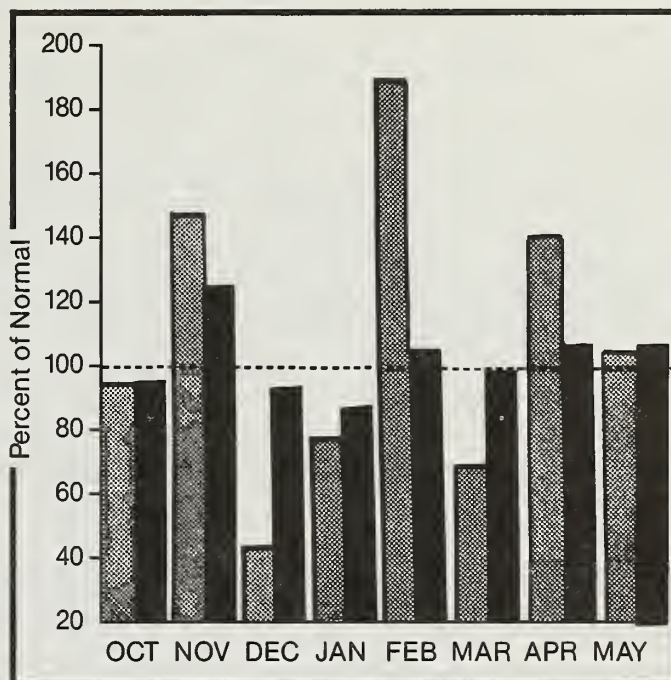
Maximum

Average

Minimum

Current

Precipitation* (percent of normal)



*Based on selected stations

Monthly precipitation

Year to date precipitation

WATER SUPPLY OUTLOOK:

Snowpacks in the Madison headwaters are a little above average for this time of year while the precipitation was about average. May started out cool and wet but ended hot and dry. Large melt rates near the end of May caused streamflows to increase rapidly. Runoff was above average in the upper drainage and below average on lower tributaries. Streamflows for the remainder of the summer are expected to be a little above average in the headwaters decreasing to below average downstream.

For more information contact your local Soil Conservation Service office.

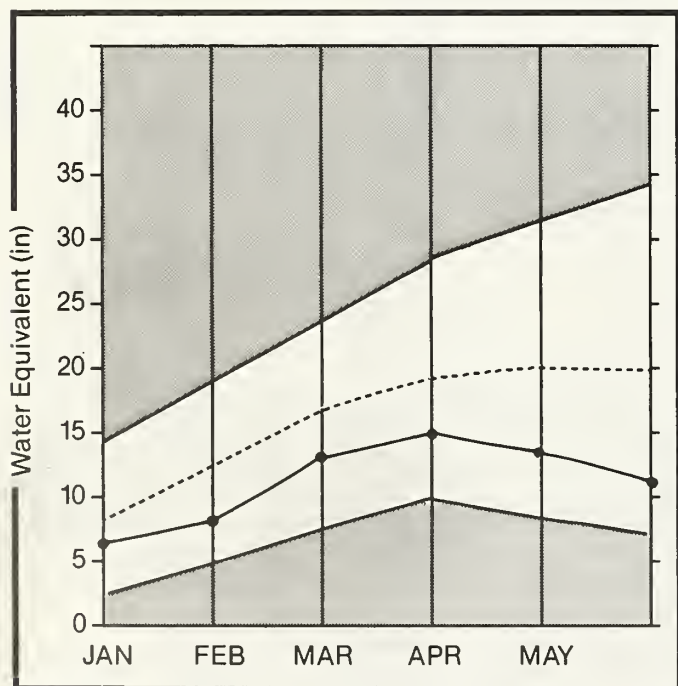
MADISON RIVER BASIN

RESERVOIR STORAGE (1000AF)					WATERSHED SNOWPACK ANALYSIS			
RESERVOIR	USEABLE CAPACITY	** USEABLE STORAGE THIS YEAR	** USEABLE STORAGE LAST YEAR	** AVE.	WATERSHED	NO. COURSES AVE.D	THIS YEAR AS % OF LAST YR.	% OF AVERAGE
ENNIS LAKE	41.0	35.7	33.5	35.8	MADISON above HEBGEN	4	283	131
HEBGEN LAKE	377.5	338.5	357.9	291.7	LOWER MADISON	4	1900	89
					MADISON	8	467	107

*Corrected for upstream diversions or changes in reservoir storage.
Average is for 1961-80 period.

Gallatin Basin

Mountain snowpack* (inches)



*Gallatin

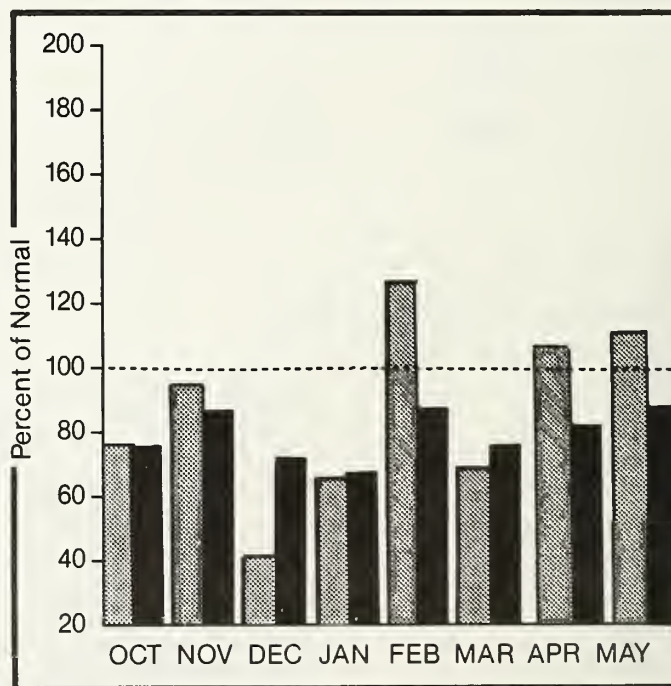
Maximum

Average

Minimum

Current

Precipitation* (percent of normal)



*Based on selected stations

Monthly precipitation

Year to date precipitation

GALLATIN RIVER BASIN

WATER SUPPLY OUTLOOK:

Snowpacks continue to be well below average. May started out cool and wet with snowpacks increasing at the higher elevations. Heavy melt rates in late May increased streamflows to bank-full levels. Mountain precipitation was a little above average while runoff was near average in the upper drainages but below average in downstream areas. Below average runoff is still expected for the remainder of the season. Shortages of irrigation water supplies can be anticipated to develop by early July.

For more information contact your local Soil Conservation Service office.

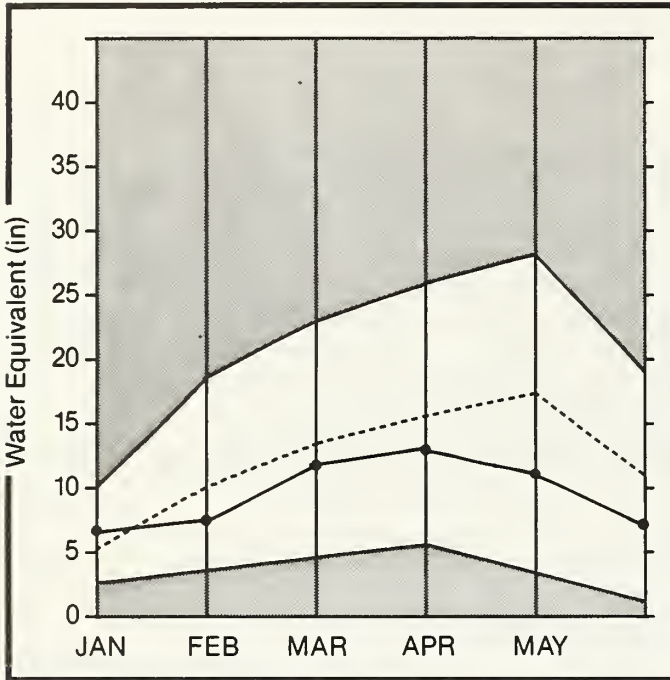
GALLATIN RIVER BASIN

RESERVOIR STORAGE (1000AF)					WATERSHED SNOWPACK ANALYSIS		
RESERVOIR	USEABLE CAPACITY	** USEABLE STORAGE THIS YEAR	LAST YEAR	** AVE.	WATERSHED	NO. COURSES AVE.D	THIS YEAR AS % OF LAST YR. AVERAGE
MIDDLE CREEK	8.0	8.3	7.6	6.7	UPPER GALLATIN	2	522 73
					EAST GALLATIN	7	1092 55
					GALLATIN	8	1116 55

*Corrected for upstream diversions or changes in reservoir storage.
Average is for 1961-80 period.

Missouri Basin

Mountain snowpack* (inches)



* Missouri Toston to Fort Peck

Maximum



Average



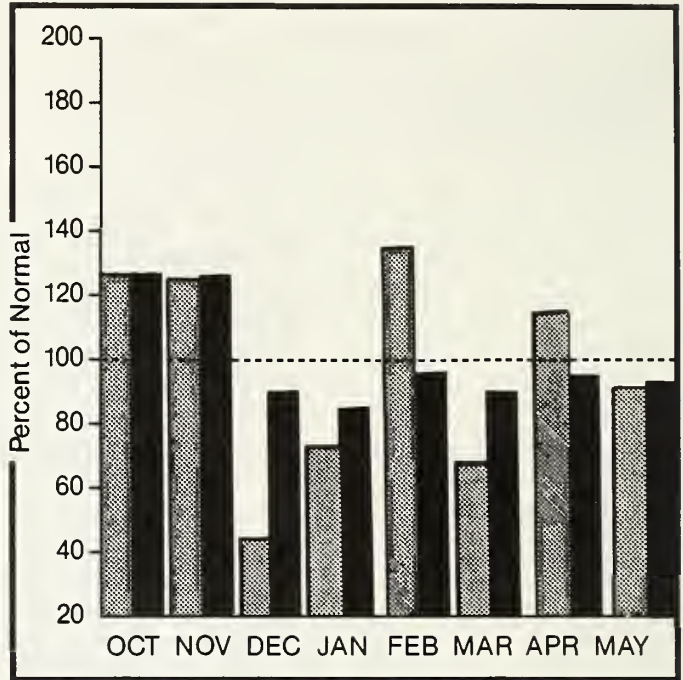
Minimum



Current



Precipitation* (percent of normal)



*Based on selected stations

Monthly precipitation



Year to date precipitation



WATER SUPPLY OUTLOOK:

Snowpacks are below average for this time of year. Precipitation during May was a little below average over the basin. Large snowmelt rates caused streamflows to increase near the end of May. Runoff for May was below average in most drainages and is expected to be below average for the remainder of the season. Shortages in irrigation supplies can be expected by late June on small, lower elevation streams.

For more information contact your local Soil Conservation Service office.

MISSOURI RIVER BASIN

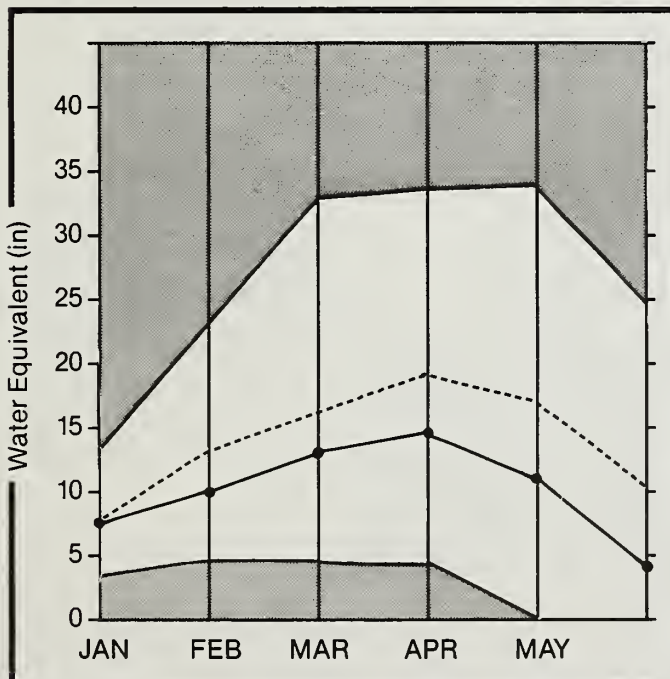
RESERVOIR STORAGE (1000AF)					WATERSHED SNOWPACK ANALYSIS			
RESERVOIR	USEABLE CAPACITY	USEABLE STORAGE THIS YEAR	USEABLE STORAGE LAST YEAR	USEABLE STORAGE AVE.	WATERSHED	NO. COURSES AVE.D	THIS YEAR AS % OF LAST YR.	% OF AVERAGE
CANYON FERRY LAKE	2043.0	1649.0	1683.0	1651.0	MISSOURI HEADWATERS	29	566	71
HELENA VALLEY	9.2	5.8	5.2	7.6	WEST SIDE MISSOURI	4	1760	53
LAKE HELENA	10.4	10.9	10.9	9.8	SMITH-BELT	7	768	91
HAUSER & HELENA	61.9	63.0	63.0	60.0	MISSOURI MAINSTEM	11	886	78
HOLTER LAKE	81.9	79.5	79.6	77.3	SUN-TETON-MARIAS	5	139	41
SMITH RIVER	10.6	11.6	11.0	10.6	JUDITH-MUSSELSHELL	8	750	90
NEHLAN CREEK	12.4	12.3	9.8	9.5	MISSOURI above FORT PECK	45	491	69
BAIR	7.0	5.6	2.2	6.6	MILK HEADWATERS	2	0	0
MARTINSDALE	23.1	21.5	7.6	17.2	BEAR PAW	5	0	0
DEADMAN'S BASIN	72.2	54.0	37.0	57.2	MILK RIVER	7	0	0
FORT PECK LAKE*	18.9	15.1	15.3	15.7	MISSOURI in MONTANA	51	491	68
					MISSOURI blw YELLOWSTONE	88	431	83

*Million Acre Feet

*Corrected for upstream diversions or changes in reservoir storage.
Average is for 1961-80 period.

Sun,Teton and Marias Basins

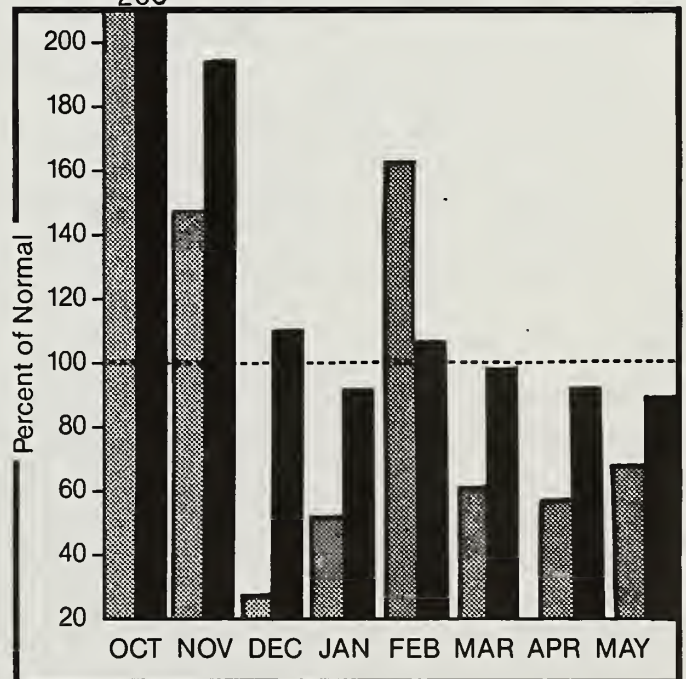
Mountain snowpack* (inches)



* Sun-Teton-Marias

Maximum Average
Minimum Current

Precipitation* (percent of normal)
266



*Based on selected stations

Monthly precipitation Year to date precipitation

SUN-TETON-MARIAS RIVER BASINS

WATER SUPPLY OUTLOOK:

Snowpacks continue to be below average and mountain precipitation during May was below average. Warm weather near the end of May increased streamflows but the total runoff was well below average on the Marias and a little below average on the Sun. The majority of snowpack in the headwaters has melted. Very low runoff is expected for the rest of the season unless precipitation patterns improve substantially. Shortages of irrigation supplies can be anticipated by late June where stored water is not available.

For more information contact your local Soil Conservation Service office.

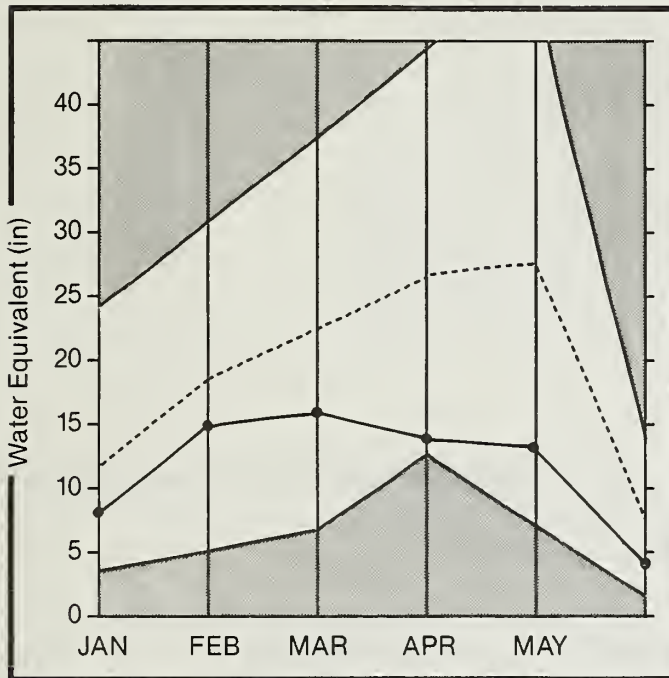
SUN-TETON-MARIAS RIVER BASINS

RESERVOIR STORAGE (1000AF)					WATERSHED SNOWPACK ANALYSIS			
RESERVOIR	USEABLE CAPACITY	** USEABLE STORAGE THIS YEAR	LAST YEAR	AVE.	WATERSHED	NO. COURSES AVE.D	THIS YEAR AS % OF LAST YR. AVERAGE	
GIBSON	99.1	88.8	85.5	90.1	SUN-TETON	3	140	39
PISHKUN	32.0	29.5	31.7	31.7	MARIAS	2	139	42
WILLOW CREEK	32.2	31.4	22.9	28.2	SUN-TETON-MARIAS	5	139	41
LOWER TWO MEDICINE LAKE		NO REPORT						
FOUR HORNS LAKE		NO REPORT						
SWIFT	30.0	27.9	17.2	24.9				
LAKE FRANCES	112.0	105.3	28.6	88.3				
LAKE ELWELL (TIBER)	1347.0	880.9	818.4	648.4				

*Corrected for upstream diversions or changes in reservoir storage.
Average is for 1961-80 period.

St. Mary and Milk Basins

Mountain snowpack* (inches)



* St. Mary

Maximum



Average



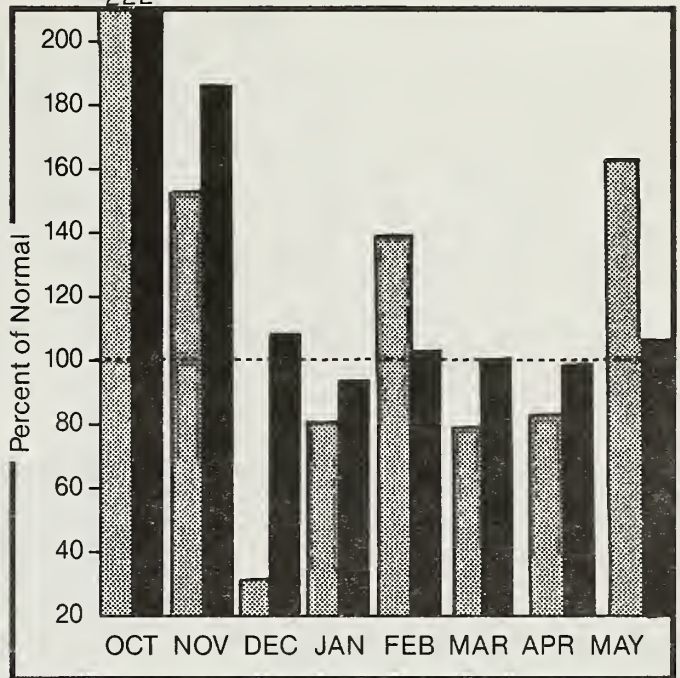
Minimum



Current



Precipitation* (percent of normal)

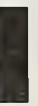


*Based on selected stations

Monthly precipitation



Year to date precipitation



WATER SUPPLY OUTLOOK:

Snowpack levels are well below average. May precipitation in the Bear Paw Mountains was nearly twice that of normal and above average in the St. Mary and Milk headwaters. Streamflows for the rest of the summer are still expected to be below average. With reservoirs nearly full, users with stored water should have good supplies available.

For more information contact your local Soil Conservation Service office.

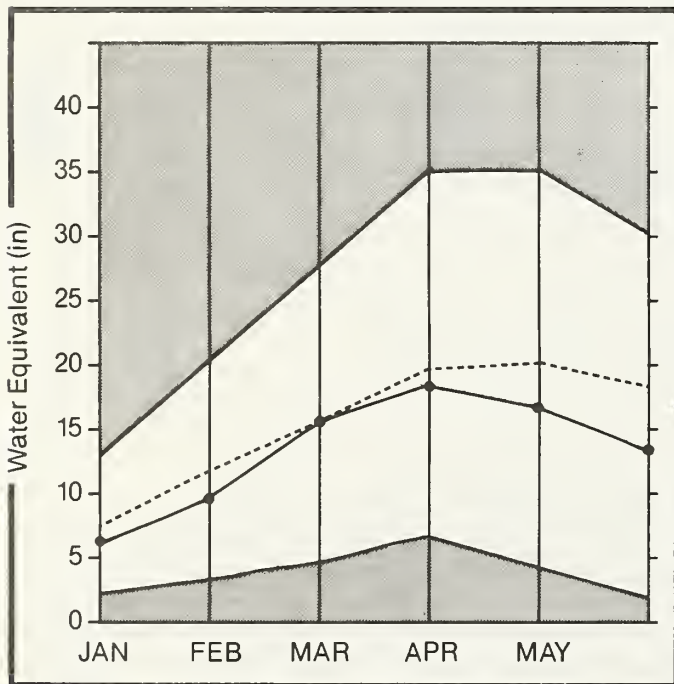
ST. MARY and MILK RIVER BASINS

RESERVOIR STORAGE (1000AF)					WATERSHED SNOWPACK ANALYSIS		
RESERVOIR	USEABLE CAPACITY	USEABLE STORAGE THIS YEAR	USEABLE STORAGE LAST YEAR	USEABLE STORAGE AVE.	WATERSHED	NO. COURSES AVE.D	THIS YEAR AS % OF LAST YR. AVERAGE
LAKE SHERBURNE	64.3	56.8	24.8	31.9	MILK HEADWATERS	2	0 0
FRESNO	127.0	106.1	29.4	96.7	BEAR PAW	5	0 0
BEAVER CREEK	3.5	3.8	1.0	3.0	MILK RIVER	7	0 0
NELSON	66.8	58.4	18.2	44.1	ST. MARY	3	109 61
					ST. MARY and MILK	8	109 59
					BOW RIVER in ALBERTA	10	305 187
					OLDMAN RIVER in ALBERTA	0	0 0

*Corrected for upstream diversions or changes in reservoir storage.
Average is for 1961-80 period.

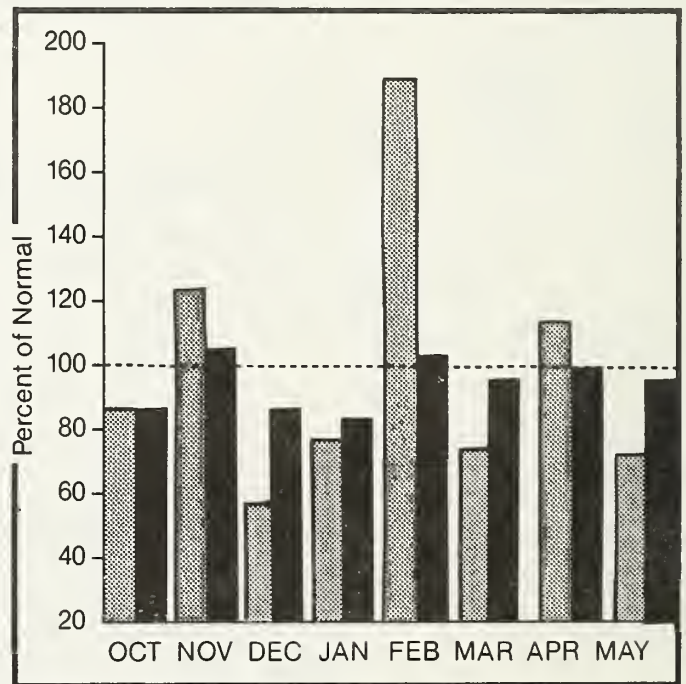
Yellowstone Basin

Mountain snowpack* (inches)



* Yellowstone above Big Horn

Precipitation* (percent of normal)



*Based on selected stations

Maximum ———
Minimum ———
Average - - - -
Current ● — ●

Monthly precipitation [hatched bar]
Year to date precipitation [solid black bar]

YELLOWSTONE RIVER BASIN

WATER SUPPLY OUTLOOK:

Snowpack increased in early May due to cool, wet weather. However, large melt rates in late May have depleted the snowpack to below average. This high melt rate also raised streams to bank-full levels. Mountain precipitation was about 75 percent of average. Runoff was above average from Yellowstone Park but below average on other tributaries and at Billings. Streamflows are expected to be near to a little above average in the upper tributaries and a little below average from lower drainages.

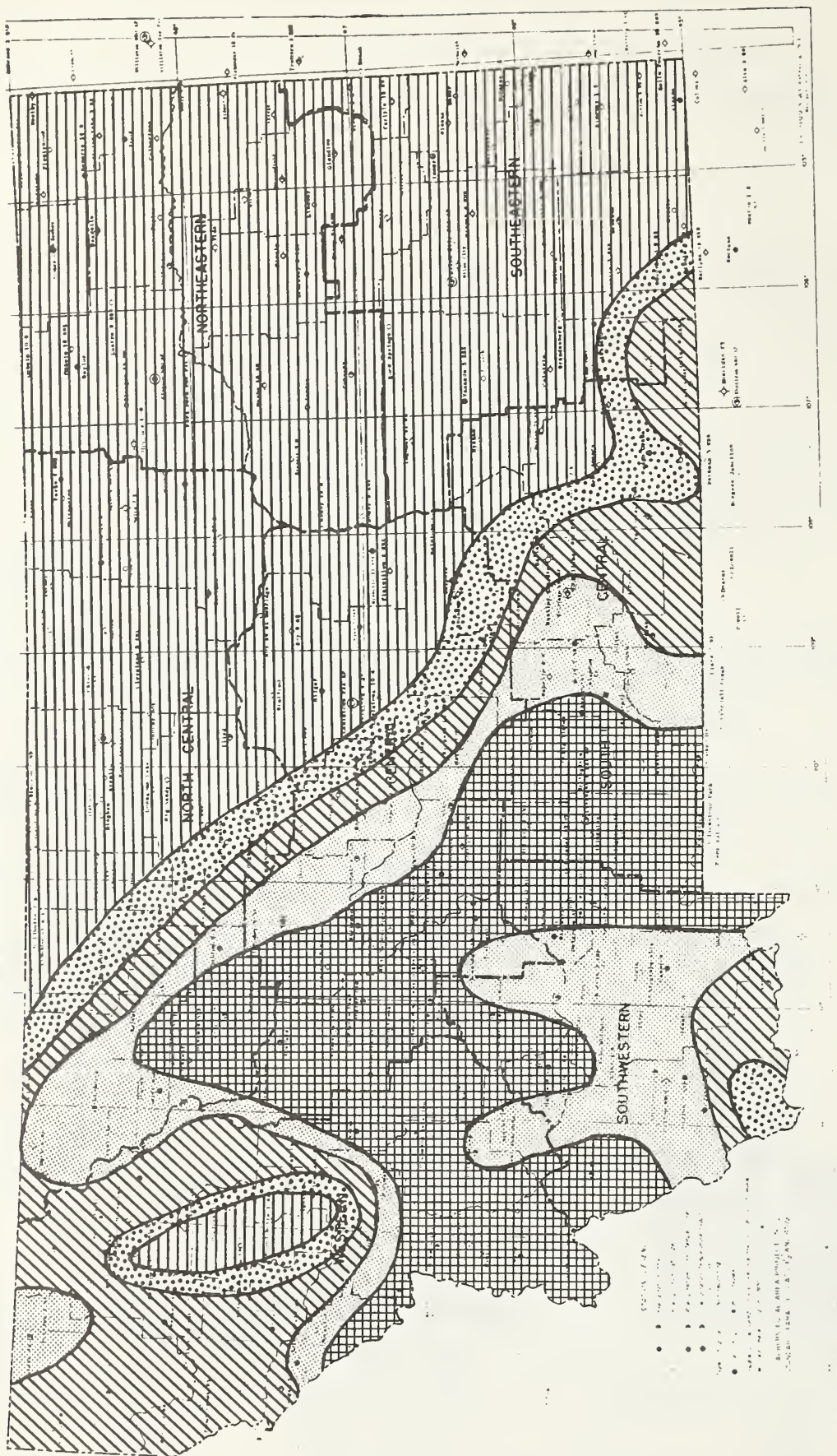
For more information contact your local Soil Conservation Service office.

YELLOWSTONE RIVER BASIN

RESERVOIR STORAGE (1000AF)					WATERSHED SNOWPACK ANALYSIS			
RESERVOIR	USEABLE CAPACITY	** USEABLE STORAGE ** THIS YEAR	LAST YEAR	AVE.	WATERSHED	NO. COURSES AVE.D	THIS YEAR AS % OF LAST YR.	% OF AVERAGE
MYSTIC LAKE	21.0	3.7	3.9	5.6	YELLOWSTONE ab LIVINGSTON	7	322	102
COONEY	27.4	24.8	19.9	18.8	SHIELDS	6	8150	51
BIGHORN LAKE	1356.0	785.3	891.6	702.7	BOULDER-STILLWATER	3	903	68
TONGUE RIVER	68.0	42.0	45.2	48.8	CLARK'S FORK-ROCK CREEK	12	311	105
					YELLOWSTONE above BIGHORN	22	398	82
					LITTLE BIGHORN	2	189	88
					WIND RIVER (Wyoming)	8	744	135
					BIGHORN RIVER (Wyoming)	16	394	114
					BIGHORN BASIN (Total)	21	407	112
					TONGUE RIVER (Wyoming)	6	968	82
					POWDER RIVER (Wyoming)	7	2350	47
					YELLOWSTONE RIVER	46	431	91

*Corrected for upstream diversions or changes in reservoir storage.
Average is for 1961-80 period.

VALLEY PRECIPITATION



Source: NWS
Great Falls, MT

May 1986

The Following Organizations Cooperate With The Soil Conservation Service In Snow Survey Work

Canadian

Department of the Environment
Atmospheric Environment Service
Water Management Service
British Columbia Ministry of Environment
Inventory and Engineering Branch, Hydrology Section
Alberta Environment
Technical Services Division

Federal

U.S. Department of Agriculture
Forest Service
U.S. Department of the Army
Corps of Engineers
U.S. Department of Commerce
NOAA, National Weather Service
National Environmental Satellite Service
U.S. Department of the Interior
Bureau of Indian Affairs
Fish and Wildlife Service
Geological Survey
National Park Service
Bureau of Reclamation
U.S. Department of Energy
Bonneville Power Administration

State

Montana Conservation Districts
Montana Department of Fish, Wildlife, and Parks
Montana Department of Natural Resources and Conservation
Montana Department of State Lands
Montana State University - Agricultural Experiment Station
University of Montana - School of Forestry

Private

Big Sky of Montana
Butte Water Company
Flathead Valley Community College
Montana Power Company
Pondera County Canal & Reservoir Company

Other organizations and individuals furnish information for the snow survey reports.
Their cooperation is gratefully acknowledged.

UNITED STATES DEPARTMENT OF AGRICULTURE

SOIL CONSERVATION SERVICE

SNOW SURVEY UNIT

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